

Exploration of Elementary School Students' Cognitive, Affective and Psychomotor Abilities Through Educaplay Interactive Media

Dwi Novita Sari^{1*}, Rahimah Embong², Irham Habibi Harahap¹, Hasanah³, Nila Lestari³, Diva Friska³, Indah Sekar Wangi³, Siti Asnik Kumala Sari³, Yulia Anjani³

¹Faculty of Teaching Training and education, Mathematics Education, Universitas Al-washliyah Muslim Nusantara, Medan, Indonesia.

²Faculty Pengajian Kontemporer Islam, Universitas Sultan Zainal Abidin, Terengganau, Malaysia.

³Faculty of Teaching Training and education, Elementary School Teacher Education, Universitas Al-washliyah Muslim Nusantara, Medan, Indonesia.

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Corresponding Author:

Dwi Novita Sari

dwinovita@umnaw.ac.id

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Abstract: Objective: This study discusses the use of the Educaplay interactive platform on students' cognitive, affective and psychomotor abilities in learning about flat shapes in grade V elementary school. Through a comparative analysis of the pre-test and post-test results, it can be seen that Educaplay is able to improve students' cognitive abilities from 60 to 86.67%. As well as affective abilities of 81.84 to 88.08% and Psychomotor Abilities of 80.94 to 85.17%, respectively. In addition, Educaplay also succeeded in providing student involvement during the learning process, so that the learning process became more interactive and interesting. Educaplay provides a more diverse learning experience and makes it easier for students to understand the concept of flat shapes more deeply. The research findings show that the application of Educaplay technology-based media in the learning process has a positive effect on students' cognitive, affective, psychomotor abilities and improves the quality of teaching at the elementary school level. The research findings recommend the use of Educaplay as a learning tool to improve students' cognitive, affective and psychomotor abilities.

Keywords: Educaplay; Interactive media; Three abilities

Introduction

As the times progress, various aspects of human life become more advanced, including the world of education, has changed due to the existence of the rapid development of technology in the digital era (Agustin et al., 2025). Meanwhile, according to Filho et al. (2018), education it is a planned and conscious effort to create a learning environment and learning process that encourages students to actively develop their potential, spiritual and religious resilience, self-control, noble morals, spiritual intelligence, and the skills needed by

themselves, society, the nation, and the world. The aim of education is to develop the potential of students to become a person who is faithful, pious, has good morals, is creative, independent and capable become a democratic and responsible citizen. However, in reality, there are still many problems that occur which make the goal education that is not achieved (Saini et al., 2023; Klees, 2024). At this time, modern learning is needed which can help students achieve learning goals. In today's era learning must rely on information and communication technology. One of How to utilize technology in the world of education, namely by using

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an interactive media like a game that will educate in a learning.

Information and communication technology must be utilized properly so that the results are also good, namely by using educational games. Educational games are one of the learning media that combines games with content education, thus creating a more interesting and interesting learning experience interactive for students (Aldalur & Perez, 2023; Usman et al., 2024). Currently, the use of games in learning is starting to become popular in the world of education due to the presence of various educational platforms digital such as Educaplay. At the elementary school level, especially grade V, the process learning is at an important stage which plays a role in shaping cognitive and emotional development of students. At this age, children need learning methods that can foster interest in learning and present a fun and meaningful learning atmosphere. When the material lessons are considered boring or too difficult to understand, student learning motivation tends to decrease. Therefore, teachers are required to develop strategies and learning media that can attract students' attention, one of which is by utilizing educational learning in classroom learning activities.

Educational games are games that exist in a digital format, specifically designed with the aim of assisting students in the learning process on a particular topic, increasing understanding of concepts, and providing education to strengthen student abilities and encourage students to engage (Mebert et al., 2020; Cents-Boonstra et al., 2021). Educational games are made for the learning process, adding insight while remaining fun and suitable for playing and having fun. Meanwhile, according to Rahmah & Risnani (2023), educational games are a form of multimedia that combines teaching programs with games, functioning as learning aids and also as games. In addition, educational games are not just a means of entertainment and play, but also support students in developing their thinking abilities and motor skills and fostering good attitudes towards the learning process. They provide students with opportunities to learn in a fun way, which in turn helps them understand the subject matter more deeply (Haleem et al., 2022; Mafarja et al., 2023).

One of the educational platforms that can be used by teachers is web-based learning media such as educaplay. Educaplay is a web-based application that is widely used for educational games, allowing teachers to create a variety of games that match the subject matter. It provides a large variety of interactive games, including quizzes, crosswords, puzzles, as well as word matching games and others. Educaplay provides a fun and interactive approach to learning, attracting students to learn thanks to its easy-to-use interface. In addition, the platform allows teachers to monitor their students'

progress in real-time and provide immediate feedback that helps improve learning outcomes. Education usually uses conventional lectures and textbooks as the main tools for teaching. Although this method has proven to be successful in some situations, the use of monotonous methods can make students uninterested in learning. Moreover, with the advancement of technology and the ease of obtaining information, children today are increasingly familiar with digital devices from a very young age. Therefore, utilizing technology that students are already familiar with can be an effective way to increase their engagement and drive in the learning process.

Educational permanent provides a solution to overcome the differences in the nature of learning that students need in the traditional education system. This permanent integrates fun aspects with educational materials, thus motivating students to learn. Research proves that educational permanent can improve students' overall ability to gain knowledge. Intrinsic motivation refers to the desire to learn that arises from within the student, not because of external factors. Students who have intrinsic motivation tend to be more actively involved in learning, which has a positive impact on their learning (Kamberi, 2025). In addition, educational transformation supports students in the independent learning process. With educational transformation, students are given the opportunity to regulate their own learning patterns, making the process more appropriate to each individual. This can also increase students' self-confidence in overcoming obstacles in learning. Educational technology provides great opportunities for improving the quality of education.

The process of learning in a more varied and innovative way can be achieved through interactive digital media such as educational media. The use of educational technology at the elementary level, especially for 5th graders, can enhance their learning experience and equip them with the skills needed to cope with the modern world. Technology can also make students more engaged in learning because digital media is more suited to their current learning style, which is already familiar with technology in visual interaction (Mhlongo et al., 2023). In addition, the use of technology in learning has been proven to increase students' learning motivation, creativity, and independence (Li et al., 2022). The use of technology in education has experienced various obstacles. The misfortune of learning in infrastructure has become a major obstacle. Many schools, especially in less developed areas, still hinder the progress in accessing technology. Learners need to be trained to memorize technology in the learning process. Educational tools such as Educaplay have many advantages, but must be implemented appropriately so that learning objectives can be achieved. In this study, the use of the Educaplay

educational tool in SD Swasta Tamansiswa Galang is an innovative step to improve the learning process of grade 5 students. This tool is intended to improve teachers' motivation to learn and also provide a more interesting and interactive learning process.

Students are more likely to understand the material of their learning while learning (Ribosa & Duran, 2022; Vermunt & Donche, 2017). In terms of the success of the learning process, one of the main indicators of the success of the learning process is the learning process. Learning processes are evaluated based on students' understanding of the material, changes in students' attitudes, and the skills they acquire during learning. Previous research has shown that interactive media reinforcement, such as educational permalinking, actually increases students' learning outcomes. This is because interactive media reinforcement makes students more involved in the learning process, which in turn reverses the permalinking in their alchemical performance.

Constructivism theory is based on the idea that students actively construct their own knowledge through interaction with their environment (Rea et al., 2022). This principle is consistent with educational permalinking, which promotes interactive and interactive learning environments. Educational play that involves students provides them with a variety of situations that are smooth and can be solved with the knowledge they have learned. This process helps students to expand their knowledge and improve their knowledge. In schools where I conduct research, the "Educationalplay" learning program helps 5th graders in their learning process. Students who previously had difficulty with traditional learning methods in the classroom may find it easier to understand

concepts through educational play that is presented visually and interactively.

In addition, "Educaplay" provides students with opportunities to learn independently outside the classroom, giving them the opportunity to understand these concepts more deeply in the context of education in Indonesia, where the use of technology in education is increasing. To improve the quality of education, the Indonesian Ministry of Education and Culture encourages the use of technology in schools. This research can contribute to developing learning methods at the basic level, especially recognizing the permanent mechanisms that can function as efficient educational tools (Diachenko et al., 2022; Dunlosky et al., 2013). This research is also related to the needs of education in Indonesia which is currently trying to improve students' learning achievement. Along with the advancement of technology, schools are increasingly implementing learning media that can improve students' learning achievement. Thus, Interactive Media Educaplay can improve cognitive, affective and psychomotor abilities for students at SD Swasta Taman Siswa Galang.

Method

The research used is by using the type of classroom action research in a qualitative approach (Ronen, 2020). CAR is a research method carried out by educators to reverse and improve the learning process in the classroom. Meanwhile, Biggs (1999) argues that CAR is a method used by teachers to add to and improve the learning experience in the classroom. The subjects in this study were 15 students. Research scheme carried out is as follows.

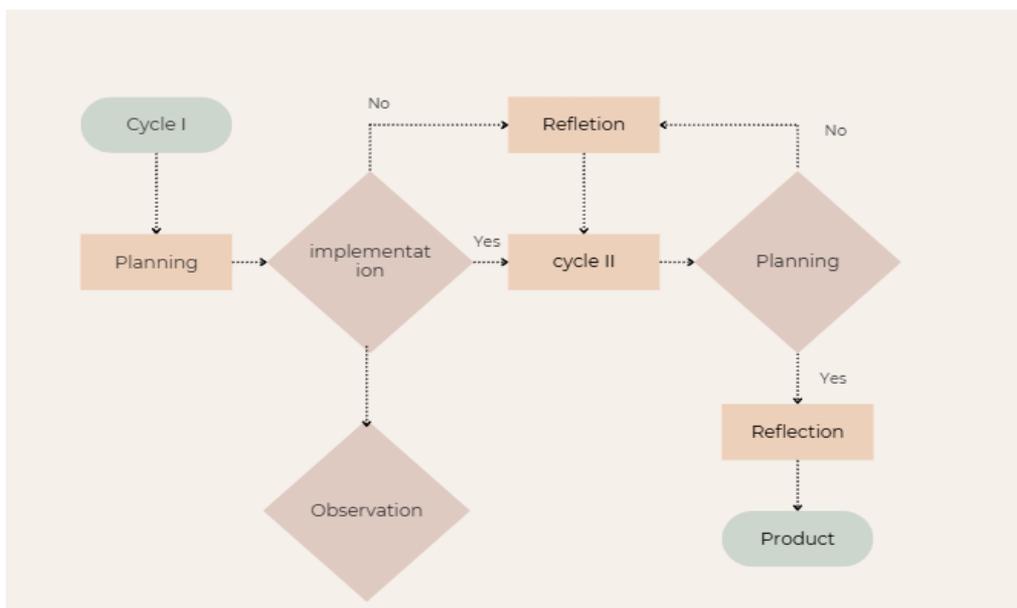


Figure 1. Schema of research classroom

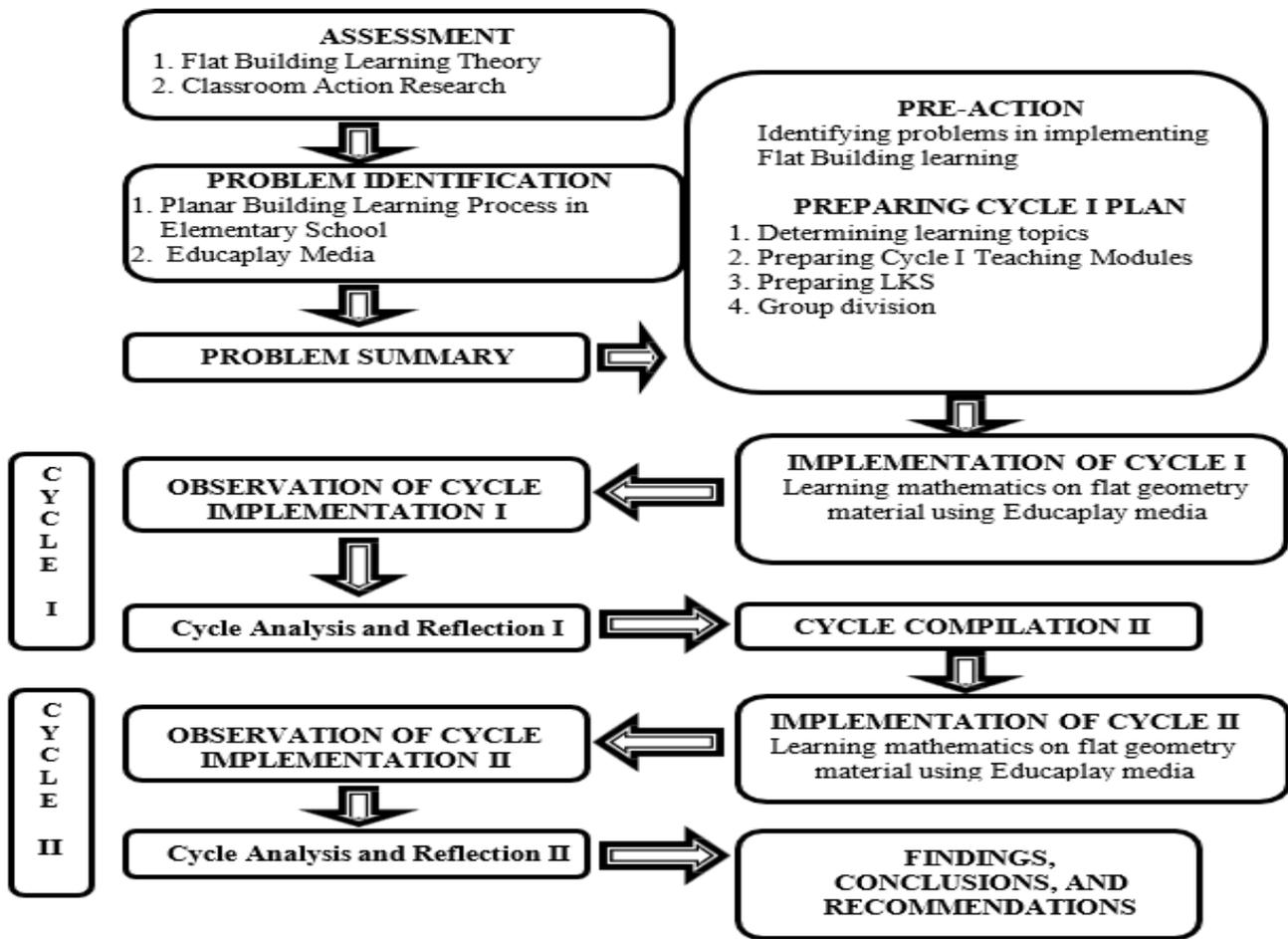


Figure 2. Plane building material research scheme using Educaplay interactive media

The implementation of PTK carried out in this study using the Kemmis & Car model to see the interactive media Educaplay used to improve cognitive, affective and psychomotor abilities as shown in Figure 2.

Result and Discussion

Mathematics is one of the disciplines included in the curriculum of education at the Elementary School level (Sumarni & Manurung, 2023; Chapman, 2017). This study involves thinking skills in cognitive activities to understand the interaction of symbols used in everyday life. The main objective of this study was to determine the dimensions of the square, 1. Students were able to calculate the circumference of a square, 2. Students were able to calculate the area of a square. Students were given 5 questions with pre-test and post-test questions that would see the results of students' learning after being used in the educational field. In carrying out the pre-test, the students were not able to pass questions 3 and 5. Based on the descriptive analysis, the results of the pre-test and post-test were analyzed through mediation can be seen in Figure 4.

Based on the Table 1, it can be seen that the learning outcomes of students in the pre-test were 9 students who were able to answer 3 questions out of 5 questions given and 2 questions were not answered by students. After learning through educational media, there was an increase of 13 students who were able to answer 5 questions out of 5 questions given. The highest student knowledge score in the pre-test was 90 and the lowest was 40. Likewise, in the post-test, the highest score achieved by students was 100, while the lowest score was 60. This shows that there is a fairly good relationship between the conditions before and after the implementation of the interactive learning media Educaplay.

Based on the memorization results obtained by students, in the frequency calculation. the completeness of the learning outcomes shows the use of Educaplay media in the form of media. In the pre-test, the percentage of completeness was 60%, while in the post-test, the percentage of completeness increased to 86.67%. Based on observations conducted on 15 students, the use of Educaplay media in physical learning showed a significant increase in students' learning outcomes from pre-test to post-test. In the pre-test, there were 9 students

(60%) who successfully met the learning completion criteria with a mean score of 67. Meanwhile, in the post-test, the number of students who met the learning completion criteria increased to 13 students (86.67%)

with a mean score that also increased to 84. This shows an increase in mean scores of 4 points from the pre-test to the post-test.

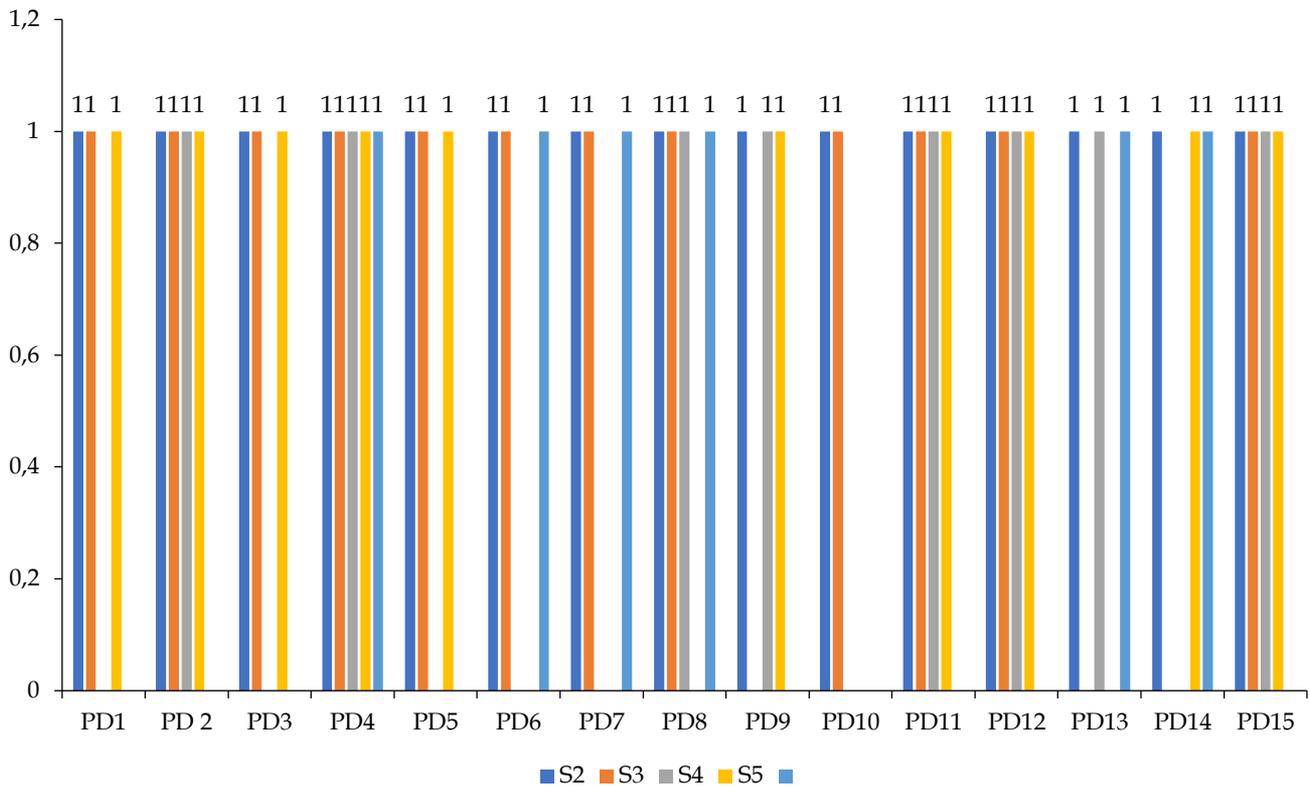


Figure 3. Students' ability to answer questions

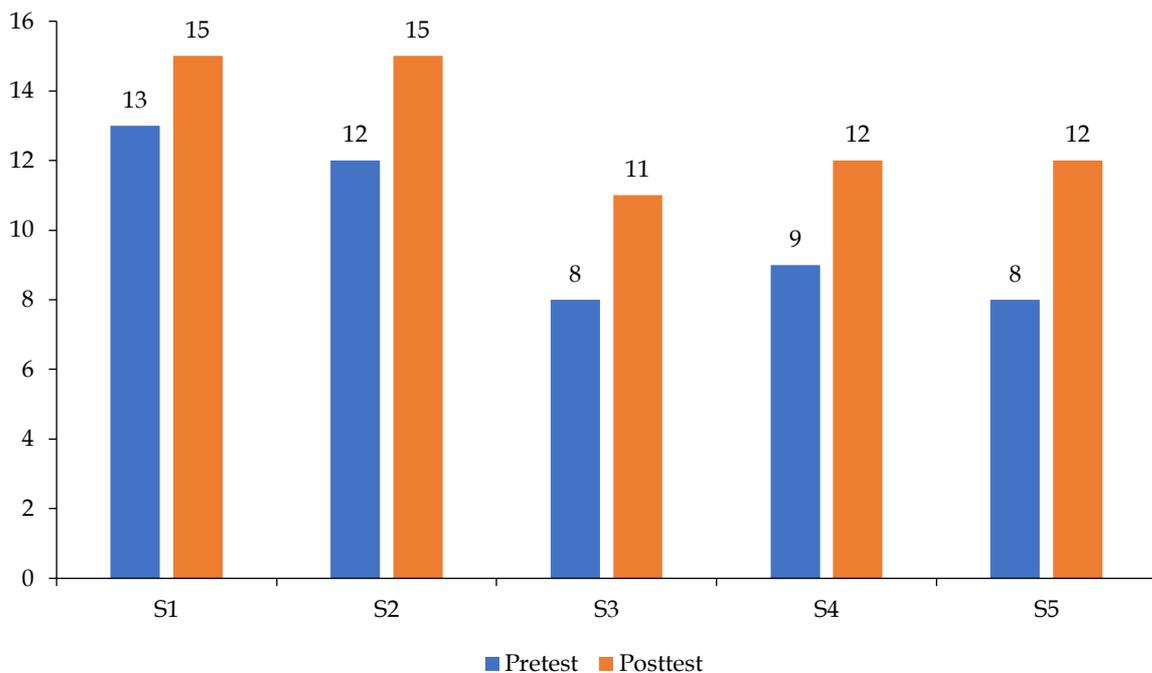


Figure 4. Learning outcome of pre-test and post-test through educational media

Table 1. Pre-test and posttest results

Stage	Total Students	Completed	Not Completed	Completion (%)
Pretest	15	9	6	60
Posttest	15	13	2	86.67

Table 2. Affective assessment (Attitude)

Indicator Affective Assessment (Attitude)	Cycle (%)	
	I	II
Critical Thinking	80.69	89.65
Mutual Cooperation	83.70	91.81
Independent	77.24	83.62
Honest	84.65	86.04
Discipline	82.93	88.89
Total	409.21	440.01
Average	81.84	88.08

Table 3. Psychomotor assessment (Skills)

Psychomotor Assessment Indicator (Skills)	Cycle (%)	
	I	II
Accuracy	80.54	90.18
Speed	81.00	90.18
Use of Media	83.12	85.52
Game Procedure	79.95	82.74
Suitability of Mathematical Strategy	80.13	85.44
Total	404.74	425.87
Average	80.94	85.17

From Figure 5, it can be seen that all affective assessment indicators (attitude) from Cycle I and Cycle II increased. In the critical thinking indicator in cycle I, the percentage was 80.69% and increased in cycle II to 89.65%.

The mutual cooperation indicator in cycle I obtained a percentage of 83.70% and increased in cycle II to 91.81%. The third indicator, namely independence in cycle I, obtained a percentage of 77.24% and increased in cycle II to 83.62%. The honest indicator in cycle I obtained a percentage of 84.65% and increased to 86.04% in cycle II. The last affective indicator, namely discipline, obtained a percentage of 82.93% in cycle I and increased to 88.89% in cycle II. In terms of percentage, each indicator obtained a ratio of 81.84% in cycle I and increased to 88.08% in cycle II.

Figure 6 explains that all psychomotor assessment indicators (skills) from Cycle I to Cycle II increased. The accuracy indicator in cycle I obtained a percentage of 80.54% and increased to 90.18% in cycle II. The speed indicator in cycle I obtained a percentage of 81.00% and increased to 90.18% in cycle II. The third indicator, namely the use of Educaplay in cycle I, obtained a percentage of 83.12% and increased to 85.52% in cycle II. The procedure indicator in cycle I obtained a percentage of 79.95% and increased in cycle II by 82.74%. The psychomotor indicator of the suitability of mathematical strategies obtained a percentage of 80.13% in cycle I and experienced an increase in cycle II to a percentage of 85.44%. Cycle I obtained 80.94% and in cycle II 85.17%. The interactive media of Educaplay shows that the use of interactive media Educaplay has been proven to increase the students' activeness during the learning process. The increase in cognitive, affective and psychomotor abilities is obtained by using interactive media Educaplay which can help students understand the material of plane figures.

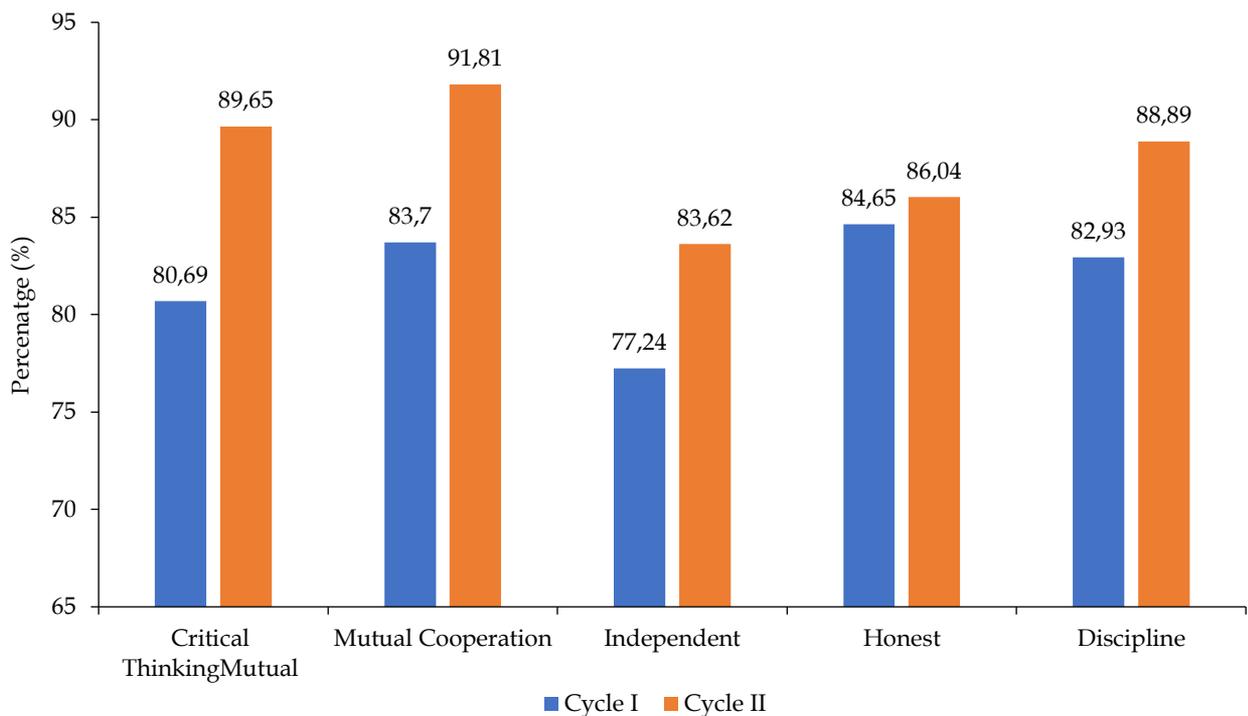


Figure 5. Affective assessment results

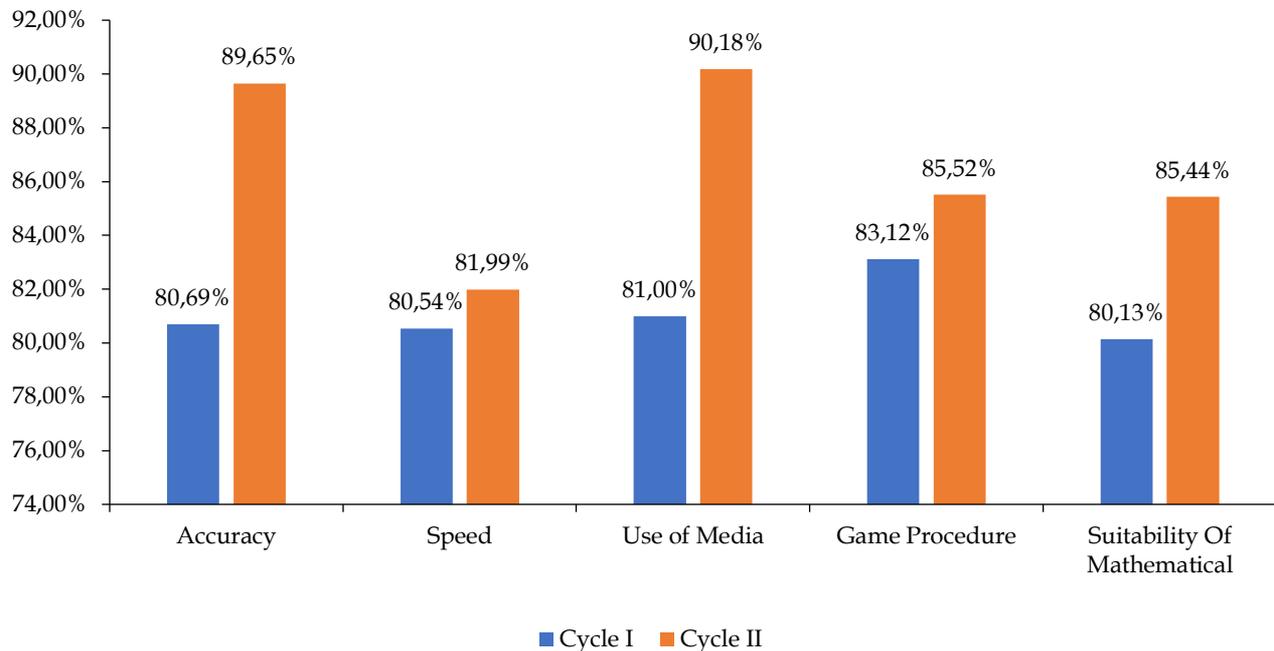


Figure 6. Psychomotor assessment results

Based on previous studies, it can be concluded that mathematical learning with the help of interactive media Educaplay can increase the achievement of learning objectives (Purnama et al., 2024; Debrenti, 2024). In line with previous research on the implementation of Educaplay in school mathematical learning based on the material and the material used in this study (Imswatama & Lukman, 2018; Fadillah et al., 2019), teachers create educational programs that are designed according to the material and needs of students (Salazar et al., 2019). Educational programs based on Educaplay can help students understand the concepts of mathematics and the material used in this study (Alonso-Sánchez et al., 2025; Heriansyah, 2020). In addition, Educaplay has disadvantages such as requiring a stable internet connection (Bala, 2024; Islam et al., 2020). In general, the advantage of media of learning is to facilitate the interaction between teachers and students so that learning activities are more effective and efficient and also to help learners who also influence the climate (Chiriac et al., 2023), conditions and learning environment that are realized and created by the teacher (Coman et al., 2020; Markula & Aksela, 2022).

By using Educaplay, it will make it easier for educators in the learning process, especially flat geometry material that is often missed by students (Jablonski & Ludwig, 2023), the advantages of media in learning are (Blaha et al., 2022; Leite et al., 2022): The delivery of learning materials can be done easily; The learning process becomes easier to understand and understand; The learning process becomes more

involving for students; Saving time and effort; Improving the quality of student learning; Media allows learning to take place in the classroom and at any time; Media encourages positive attitudes in students in learning activities; Changes the role of teachers to be more positive and productive. Meanwhile, according to Sariakin et al., 2025; Postholm, 2018), the advantages of learning media: increase learning motivation; help understanding content; offer various learning opportunities; increase information retention; save time and energy; foster independence and innovation; overcome time and space constraints 8. provide fast feedback.

Conclusion

The findings of the results of this study are that the use of educational game media can improve the cognitive, attitudinal, and psychomotor abilities of students on flat building material at SD Taman Siswa Galang Class 5. The results of the pre-test and post-test scores, obtained the level of learning completeness increased from 60 to 86.67%, which is a safe increase of 26.67%. While in the affective aspects of students in cycle I the value was 81.84%, cycle II was 88.08% with a significant increase of 6.24%. While in the affective aspects of students in cycle I the value was 81.84%, cycle II was 88.08% with a significant increase of 6.24%. The psychomotor aspects of cycles I and II were 80.94 and 85.17% respectively with a significant increase of 4.23%. In other words, the use of educaplay interactive media

applications has succeeded in improving the three basic abilities of students, namely cognitive, affective and psychomotor. Educaplay is recommended to be used as one of the learning media in elementary schools because the use of educaplay will motivate students to take part in learning seriously because of the interactive learning process.

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Author Contributions

Research design, D.N.S., R.E., and I.H.H.; Conducting article, H. and N.L.; Colletings and analyzing data, D.F., I.S.W., S.A.K.S., and Y.A. All authors have read and agreed to the published version of the manuscript.

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Conflicts of Interest

The authors declare no conflicts of interest.

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